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Innovation, Creative Destruction, and Sustained Economic Growth - A Critical Insight into the Economic Thoughts of the 2025 Nobel Laureates

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Abstract

Economic growth is a complex phenomenon. The historical analysis of demographic and economic changes reveals that all economies have passed through four stages as they progressed from stagnation to rapid growth. The first Industrial Revolution, triggered by discoveries, innovations, and technological progress, helped economies break the Malthusian trap, and Western economies entered the phase of economic take-off. By the end of the 19th century, Western economies entered an era of sustained economic growth, and less-developed countries followed in the 20th century. As the pace of technological progress has increased, the contribution of human capital - education, skills, and health - has been acknowledged and emphasized. Economists have sought to analyze the dynamics of economic growth using growth models. These models usually focus on empirical evidence to trace the path of growth but often do not give due attention to the historical factors that triggered the transition and endogenous factors - knowledge and innovation. The Nobel Prize in Economics for 2025 was jointly awarded to Philippe Aghion, Peter Howitt, and Joel Mokyr for their economic thoughts on innovation-driven growth. Although distinct, their ideas are complementary, as they argue that the dynamic interaction between knowledge, innovation, technological advancement, and institutions leads to sustained economic growth. This research traces their flow of thought on the role of exogenous and endogenous factors in economic development. This paper presents a conceptual review and attempts to critically interpret and synthesize the intellectual contributions of Nobel laureates. This study uses a qualitative and analytical research design based on a comprehensive review of the literature. The study's theoretical foundation draws on the original scholarly contributions of Nobel laureates and literature on the Nobel Prize's scientific background and Nobel lectures to examine their ideas. Additional literature, primarily secondary sources, is used to show the link between their perspectives and to provide a comprehensive understanding of innovation-driven creative destruction. The paper concludes by identifying future research avenues, specifically the role of artificial intelligence, digital transformation, and green technologies in innovation-driven economic growth, which is dominant worldwide today.

Keywords: Industrial Revolution, Industrial Enlightenment, Innovation, Creative Destruction, Useful Knowledge, Sustainable Growth.

Economic growth is a complex process. The historical analysis of demographic and economic changes reveals that economies have progressed from stagnation to sustained economic growth, propelled by demographic transition and an industrial revolution (Galor, 2005). The first phase was a period of rapid population growth with very slow growth in income per capita, that is, Malthusian Stagnation. The first Industrial Revolution, triggered by discoveries, innovations, and technological progress, helped economies break this Malthusian trap, and Western economies entered the phase of economic take-off. With rising per-capita income and capital accumulation, Western economies entered an era of sustained economic growth by the end of the 19th century, and less developed countries followed suit in the 20th century. As the pace of technological progress increased, the contribution of human capital

- education, skills, and health - was acknowledged and emphasized. An in-depth study of the economic transition from a historical perspective proves that growth in the twentieth century was dynamic and sustainable. Economists have sought to analyze the dynamics of economic growth in their growth models. These models usually focus on empirical evidence to trace the path of growth but often do not give due attention to the historical factors that triggered the transition.

The Nobel Prize in Economics for 2025 has been jointly awarded to Philippe Aghion, Peter Howitt, and Joel Mokyr for their economic thoughts on innovation-driven growth. The recipient of one half of the Nobel Prize in Economic Sciences is the economic historian Joel Mokyr, who has “identified the prerequisites for sustained growth through technological progress, (Nobel Prize.org, 2025).” The other half is shared by Philippe Aghion and Peter Howitt, “for the theory of sustained growth through creative destruction, ((Nobel Prize.org, 2025).” The three economists have different but linked approaches that demonstrate that sustained economic growth is a dynamic interplay between knowledge, innovation, technological replacement, competition, and institutions. They argue that over the last 200 years, a steady stream of knowledge, reflected in technological innovations that improve living conditions, has caused sustained growth. This study examines their views on endogenous growth and the ideas of useful knowledge and creative destruction. J. Mokyr’s approach to the concept of sustained economic growth from the historical perspective has been discussed to explain his views that innovations triggered creative destruction and the ‘Industrial Enlightenment’ and created a virtuous cycle of knowledge accumulation. Aghion and Howitt’s model of the dynamic interplay between knowledge and innovation has been analyzed.

Research Gap

Research scholars in the field of the history of economic thought have widely studied Mokyr, Aghion, and Howitt. However, much of the existing literature focuses either on Mokyr’s historical interpretations or on Aghion and Howitt’s theory of creative destruction. The three economists have

different approaches to demonstrating that sustained economic growth is a dynamic interplay among knowledge and innovation, but their views are linked. Limited attention has been devoted to analyzing their complementary perspectives within the broader evolution of economic growth theory. Realizing the need to critically examine how their contributions highlight that exogenous growth models failed to address the roles of knowledge creation, innovation, and institutions, the paper presents a combined review of the laureates’ contributions. This paper also highlights the significance of the laureates’ work in the contemporary growth path of digital transformation and artificial intelligence.

Research Objectives

The present study seeks to achieve the following objectives:

- To trace the evolution of economic growth theories from exogenous models to endogenous growth models and enrich the understanding of the long-run economic growth process.
- To examine Joel Mokyr’s historical perspective on sustained economic growth by analyzing the concepts of useful knowledge, the Industrial Enlightenment, and technological progress.
- To critically examine Philippe Aghion and Peter Howitt’s model of endogenous growth - innovation and creative destruction.
- To examine how the laureates’ contributions are complementary to each other.
- To discuss the policy implications of their economic ideas in the context of innovation-driven economic growth that is dominant across the world today.

Methodology

This study traces the historical path of economic ideas regarding the various factors that lead to economic growth, with particular emphasis on the contributions of the 2025 Nobel Prize laureates in Economic Sciences: Joel Mokyr, Philippe Aghion, and Peter Howitt. A qualitative and analytical research design based on a comprehensive review of the literature was used in the thematic approach. Literature, primarily from secondary sources, Nobel Prize scientific background documents, Nobel

lectures, publications by the laureates, peer-reviewed journal articles, working papers, and books, has been used for an in-depth study. Initially, this study presents the historical evolution of economic growth theory from classical and neoclassical exogenous growth models to endogenous growth theory to build an understanding of the background of the ideas of the Nobel laureates. Following this, the paper discusses Joel Mokyr's historical analysis of technological progress and the concept of useful knowledge, as well as the Schumpeterian endogenous growth model proposed by Philippe Aghion and Peter Howitt. Finally, the link between the two perspectives is discussed to provide a comprehensive understanding of innovation-driven economic growth. This exploration aims to spark curiosity among researchers and students regarding how these models shape current economic thinking. The theoretical foundation of this study is the original scholarly contributions of Nobel laureates. Recent peer-reviewed studies highlighting laureates' contributions to contemporary academic debates were analyzed. Thus, as a conceptual review, this study attempts to critically interpret and synthesize the intellectual contributions of Nobel laureates. This focus aims to inspire respect for the scholarly rigor that underpins the research approach.

Economic Growth – A Review of Literature

The question of what determines an economy's growth rate and path has long been a subject of debate. A review of existing research on theoretical economic growth models and economists' perspectives reveals two main approaches to analyzing growth: exogenous and endogenous approaches. These two approaches emphasize different macroeconomic factors that lead to growth

in per-capita income. Exogenous growth models postulate that productivity growth results from direct investment, population growth, and technological progress (Acemoglu, 2012). An economy grows and reaches a steady state because of diminishing returns from internal factors such as capital accumulation. Beyond this point, exogenous factors, specifically technological progress, affect the long run growth rate. Technology improves at an exogenously given rate that is unaffected by economic variables. The Harrod-Domar Model, a precursor to growth theories, asserts that the growth rate of output is the ratio of the national saving rate to the fixed capital-output ratio, and that a stable equilibrium at the maximal output level is like a knife-edge (Chetty and Pradhan, 2020). The neoclassical growth models of Solow (1956) showed that the determinant of long-run economic growth is the growth rate of total factor productivity, which depends primarily on the rate of technological progress. Technology improves at an exogenously given rate that is unaffected by economic variables. Endogenous growth models argue that economic growth is an endogenous outcome of an economic system, not the result of forces that impinge from outside (Romer, Paul M. 1994). Endogenous growth theorists (Frankel, 1962; Romer, 1986; Lucas, 1988; Aghion & Howitt, 1992) emphasize investment in innovative and intellectual assets. The AK Model argues that technological progress is a form of capital accumulation - accumulation of knowledge, which is a kind of intellectual capital. Another class of endogenous growth models includes factors that affect the efficiency of capital, such as real interest rates, fiscal policy, inflation, and real exchange rates, as endogenous determinants of growth (Chirwa et al., 2018). The theoretical approaches to the growth modes are listed in Table 1.

Table 1 The Theoretical Approaches of the Exogenous and Endogenous Growth Models

Exogenous Models - Long-run growth is driven solely by technological progress. Technology improves at an exogenously given rate, unaffected by economic variables.		
Roy F. Harrod -1939 E. Domar -1946 The Harrod-Domar Model	An Essay in Dynamic Theory Capital Expansion, Rate of Growth, and Employment	An economy's growth rate depends directly on its savings rate and inversely on its capital-output ratio. A country's ability to save and invest drives its growth.
R. Solow - 1956	A contribution to the theory of economic growth	Long-run economic growth is driven by technological progress, which is exogenously determined and is independent of any government policy intervention.

Endogenous Growth Models – Long-run growth is driven solely by technological progress. Technological progress is endogenous and results from economic decisions and activities such as investment in human capital, innovation, and knowledge creation. Human capital and knowledge enable sustained growth.

Physical Capital Based Endogenous Growth Theories		
J.A. Schumpeter ((1942).	Capitalism, socialism, and democracy	Industrial Innovation and creative destruction theory – In a capitalistic economy, an innovation (new products, production technology, markets, and organization) revolutionizes the economic structure from within, destroys the existing old technology, and creates a new one.
M. Frankel (1962). The AK Model	The production function in allocation and growth: a synthesis	The aggregate production function: $Y = aK$ exhibits increasing returns to scale if a portion of the capital employed is allocated to innovation that contributes to technological progress, such as improvements in organization, quality of labor, technical change, or external economies of scale (Frankel, 1962, p. 1001).
David Cass (1965).	Optimum growth in an aggregative model of capital accumulation	The optimal feasible growth path could not be determined without maximizing the utility of current consumption per capita (Cass, 1965, p. 234). The optimum savings rate is endogenously determined and influenced by policy changes.
Intellectual Capital-Based Endogenous Growth Theories		
Kenneth Arrow (1962). The ‘learning by doing’ model	The economic implications of learning by doing.	Self-practice and innovation lead to increased productivity and improved human capital. This is because learning by doing reduces the labor required to produce a unit of output. This endogenous factor promotes economic growth.
Paul Romer (1986).	The Origins of Endogenous Growth.	The economic growth path of the technology-driven endogenous model is driven by the accumulation of intangible knowledge, as measured by ‘forward-looking, profit-maximizing agents’ (Romer, 1986, p. 1003).
Robert Lucas (1988).	On the mechanics of economic development	Human capital refers to developments in the productivity and skill level. Human capital has two effects: on existing factors of production and the production function, and on time allocation that affects human capital accumulation (Lucas, 1988, p. 17). The Lucas (1988) human capital growth model has two solutions: an optimal path and an equilibrium path. The optimal path aims to maximize consumer utility subject to the production function and the endogenous human capital accumulation function. The equilibrium path involves maximizing the endogenous human capital accumulation function (Lucas, 1988, p. 20).

Source: Author’s Compilation

The current literature on the works of the Nobel laureates focuses on their thoughts on the innovation-driven growth path and the challenges of climate change, the advancement of artificial

intelligence, and digital transformation. In their book, Akcigit and Van Reenen (2023) present a deep understanding of the Aghion–Howitt model. In the same flow of thought, in her retrospective study of Mokyr’s historical analysis of growth path and the Aghion-Howitt growth models, Treibich, T. (2025), argues that capital accumulation alone cannot lead to growth, and the interplay of technological innovations, investment, institutions, and competition together makes it sustainable. Égert, B. (2026), in a comprehensive review, integrated the contributions of Joel Mokyr, Philippe Aghion, and Peter Howitt and presents historical and modern perspectives on economic growth. In his book review, Kovacs, O. (2026), focusing on Schumpeter’s creative destruction, argues for its relevance today for building policies that encourage innovations for wellbeing, inclusive, and sustainable development. Howitt, Peter’s Nobel lecture (2026) encapsulates their entire research based on Schumpeterian growth and explains how innovations of entrepreneurs, motivated by monopoly profits, make old production technology obsolete while at the same time leading to growth. Mokyr’s Nobel lecture (2026) provides insight into fundamental ideas regarding the functioning of innovations, ‘The Knowledge Feedback Loop,’ and argues that the divergence between the growth rate of technology and human institutions is a threat to evolutionary-style adaptation. Continuous innovation is crucial for addressing the global challenges of climate change and demographic shifts. In this stream of thought, this study analyzes the economic ideas on innovation-driven growth by J. Mokyr, Philippe Aghion and Peter Howitt.

J. Mokyr

“The co-evolution of what people knew and what they did in the later eighteenth and early nineteenth centuries in Europe produced a positive feedback loop that ignited a chain of technological innovations the Industrial Revolution, which eventually led to the emergence of modern economic growth (Mokyr, 2005).

J. Mokyr approached the concept of sustained economic growth from a historical perspective. The thirteen books of J. Mokyr’s articles and a five-

volume encyclopedia all focus on industrialization and trace the economic history from the period of slow growth and Malthusian stagnation to sustained growth after the Industrial Revolution, arguing that the innovations triggered creative destruction and the ‘Industrial Enlightenment’ and created a virtuous cycle of knowledge accumulation (Nobel lecture, 2025).

Industrial Enlightenment: The Industrial Revolution, the ‘mother of all creative destruction’ (Mokyr, 2020), marked the takeoff of economic growth across the European continent after a long period of Malthusian stagnation (Galor & Oded, 2005). Mokyr argues that before the Industrial Revolution, “no one knew why things worked; even radical technological shifts failed to generate the applications that made them useful in production processes. (Mokyr, 2002).” The interaction between theoretical and practical knowledge drove the Industrial Revolution and its takeoff. He terms this revolution the ‘Industrial Enlightenment’ (Mokyr, 2002). Tracing the history of economic progress, Mokyr states that progress before the Industrial Revolution was not sustained; instead, it occurred in many short periods. The Industrial Enlightenment brought about a set of social changes that transformed the nature and extent of propositional and prescriptive knowledge and their relationship (Nobel Lecture, 2025). His work is devoted to analyzing the conditions that triggered the sustainable growth process using the concept of ‘useful knowledge’ and the ‘Culture of Growth.’

Theory of Useful Knowledge: Joel Mokyr used Simon Kuznets’ concept of ‘useful knowledge’ to analyze the Industrial Revolution. According to Kuznets, the take-off stage of growth was a period of “enormous acceleration in the contribution to the stock of useful knowledge” (Nobel lecture, Kuznets, 1971), which led to technological innovations. In *The Gifts of Athena*, Mokyr (2002) argues that useful knowledge – a combination of propositional and prescriptive knowledge – is a driver of sustained growth.

“Useful knowledge takes two forms: one is the observation, classification, measurement, and cataloging of natural phenomena. The other is the establishment of regularities, principles, and “natural

laws” that govern these phenomena and allow us to make sense of them (Mokyr, 2002).”

Two types of useful knowledge interact in society: Episteme and Techne. Episteme is society’s collective understanding of the natural world (Buyst, 2019). It is the knowledge that humans gain through observation and the discovery of the laws of the universe, and it also includes a society’s culture, folk wisdom, and science. Techne refers to all technologies developed by humans to enhance productivity, improve living conditions, and achieve desired outcomes.

According to Mokyr, the Industrial Revolution resulted from useful knowledge that created a virtuous circle between episteme and techne. Mokyr further distinguishes between propositional and prescriptive knowledge to explain these ideas.

Propositional Knowledge refers to a systematic understanding of why things work. It is related to the knowledge of natural phenomena and the physical world. According to Mokyr, “Propositional knowledge contains the observation, cataloging, and classification of natural phenomena as well as the establishment of regularities and principles and natural laws governing these phenomena..... Propositional knowledge is thus episteme, the set of rules, assumptions, and discourses that determine what is considered legitimate knowledge and how it is produced and understood within a specific historical context(Mokyr, 2002)”.

Prescriptive Knowledge refers to practical instructions or designs and techniques that explain how things work in practice. “Prescriptive knowledge is techne, the arts, skills, and crafts in the context of making or doing (Mokyr, 2002).”

Before the Industrial Revolution, innovations driven by prescriptive knowledge led to short-term growth and prosperity. The Industrial Enlightenment developed a positive feedback loop between the two types of knowledge, connecting science to practice and leading to a rapid increase in scientific innovation. Propositional and prescriptive knowledge complement each other, and together they generated sustainable growth during the Enlightenment, enabling continuous innovation and industrial transformation. Mokyr argued that the Industrial Enlightenment improved the common masses’

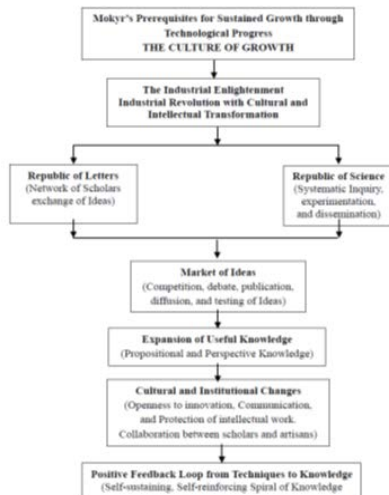
access to prescriptive knowledge and increased their understanding of ‘techne.’

Knowledge Revolution: Access to Useful Knowledge–Mokyr emphasized that institutional and social factors are critical for sustained growth. Useful knowledge can only benefit society if it is accessible and communicable. The Industrial Revolution led to sustained growth, not merely because of new knowledge emerging from discoveries and inventions, but because of the ‘knowledge revolution’, that is, better and cheaper access to knowledge. He said, “What matters for sustained progress is not the stock of ideas but the institutions that make ideas credible and combinable.” Sustained growth requires a society that is open to changes. Innovations can succeed only when society embraces new ideas and develops a culture and institutions of intellectual tolerance (Mokyr, 2016; Spolaore 2020). Innovators face resistance from established interest groups whose power is rendered obsolete by the new technologies. Barriers to intellectual and technological transformation must be removed to promote perpetual progress. He states that “Any society in which a social chasm exists between the workers, the artisans, and the engineers on one side, and the natural philosophers andwill have difficulty mapping continuously from useful knowledge onto the set of recipes and techniques that increase economic welfare (Mokyr, 2002).”

In *The Gifts of Athena*, which explains the dynamics of sustained growth, Mokyr shows that with the Industrial Revolution, a positive feedback loop between propositional and prescriptive knowledge was developed. Combined with this, a change in society -an increase in communication between savants (those who knew things) and fabricants (those who made things)–resulted in sustained scientific and technical progress. In *The Enlightened Economy* (2009), Mokyr emphasizes the role of cultural transformation, reason, and scientific discovery.

In *Culture of Growth* (2016), Mokyr discusses the cultural and intellectual transformation in the seventeenth and eighteenth centuries and the consequential better understanding of nature, as well as the improved determination of knowledge itself. The ‘Republic of Letters’, i.e., scholars

across Europe, enabled a process of intellectual innovation and diffusion. It has changed society's beliefs and attitudes towards knowledge. Gradually, the 'Republic of Letters' evolved into the 'Republic of Science', resulting in cultural evolution and institutional changes that fostered a 'market for ideas', expanded useful knowledge, and created a virtuous circle that promoted sustained economic progress.



Author's presentation based on: Mokyr, J. (2000). Knowledge, Technology, and Economic Growth during the Industrial Revolution.

Thus, as an economic historian, Mokyr traces the history of growth and interweaves innovation, knowledge, and intellectual and cultural transformations.

The Aghion-Howitt Model - The mechanisms of sustained growth - creative destruction.

..... "a model of economic growth based on Schumpeter's process of creative destruction. Growth results exclusively from technological progress, which, in turn, results from competition among research firms that generate innovations. Each innovation consists of a new line of intermediate goods that can be used to produce the final output more efficiently than before. Research firms are motivated by the prospect of monopoly rents that can be captured when successful innovations are patented. But those rents in turn will be destroyed by the next innovation, which will render obsolete the existing line of intermediate goods."

(Aghion, Philippe, and Peter Howitt, 1992, 2014)

Aghion and Howitt's model builds upon Schumpeter's concept of creative destruction to show how the endogenous factor, innovation, leads to sustained balanced growth.

Schumpeter's Creative Destruction

Endogenous growth theories claim that growth is a function of the existing stock of knowledge, which is endogenously determined by investment in education and research. In his seminal works, "Theory of Economic Development" (1911) and "Capitalism, Socialism and Democracy" (1942), Schumpeter pioneered the argument that innovation drives technological progress. He argued that innovations that increase productivity, stimulate the economy, and initiate a process of "industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one." (Schumpeter, J.A. 1942). This process, which Schumpeter called 'creative destruction,' initially results in temporary unemployment. Producers and workers in older technologies suffer, but this ultimately fosters long-term economic growth. Thus, innovative creations stimulate economic growth. Schumpeter's theory shows that growth is not possible under static-equilibrium market conditions. Growth is an organic and dynamic process sustained by an economic environment of disequilibrium resulting from innovation and competition. Schumpeter used the term 'creative destruction' to emphasize that growth, stimulated by innovations, creates both winners and losers.

The Aghion-Howitt Model

Aghion and Howitt built upon Schumpeter's concept of 'creative destruction' to show that capitalism's turbulence generates steady progress. The disruption caused by innovation is not a crisis; the instability it creates sustains prosperity. They analyze the process of sustained growth, motivated by innovation, which was witnessed in advanced economies in the twentieth century. Their central idea is that individual innovations and conflicting interests at the microeconomic level within firms lead to 'business stealing' and, ultimately, aggregate output growth. The model demonstrates the link

between innovation, competition, and growth. Using the heterogeneity and competitive relations among firms, they analyze the positive and normative aspects of innovation-led growth (Nobel lecture, 2025)

The Basic Tenets of the Model

Innovation is the Engine of Growth: Innovation is a process by which a producer in the market uses ‘better technology’ to produce an improved quality of a pre-existing product. “Each innovation consists of the invention of a new line of intermediate goods, whose use as inputs allows more efficient methods to be used in producing consumption goods, (Aghion, Philippe, & Peter Howitt, 1992)

Creative Destruction: Owing to innovations, the existing technology of another existing firm becomes obsolete – creation leads to destruction. “... technological progress creates losses as well as gains by rendering obsolete old skills, goods, markets, and manufacturing processes. This has both positive and normative implications for growth. In positive terms, the prospect of a high level of research in the future can deter research today by threatening the fruits of that research with rapid obsolescence. In normative terms, obsolescence creates a negative externality from innovations, and hence a tendency for laissez-faire to generate too much growth (Aghion, P.; Howitt, P., 1990; Aghion, Philippe, & Peter Howitt, 1992).

Monopoly Rent: Temporary monopoly profits (rents) are necessary to incentivize innovation. “...entrepreneurs and researchers .. expect to be rewarded with (monopoly) rents if their innovation is successfully implemented; ...in general, these monopoly rents are eventually dissipated, as the new processes or products introduced by current innovators become obsolete when innovations occur that compete with the current technologies and thereby drive them out of the market (Dowrick et al., et.al. 2004).” In other words, each innovation creates new monopoly rents and destroys those created by earlier innovations. Yesterday’s innovators often try to use their power to prevent new competition. This creates a conflict between established firms and those introducing innovations.

Knowledge Spillover Effect: As an economy grows, knowledge spills over from the past to new

innovators. “A successful innovation produces knowledge that other researchers can use without compensation to the innovator (Aghion, Philippe, & Peter Howitt, 1992).” Thus, the innovation process is self-propelling and self-sustaining. Knowledge Spillovers are of a dual nature – innovations act as a ladder, leading to vertical expansion. However, they simultaneously destroy existing producers by making their products obsolete; that is, they generate a business-stealing effect.

The production of the final good Y at time t depends on labor and the productivity of the latest intermediate good. The production function is

$$Y_t = A_t L^{1-\alpha} X_t^\alpha$$

Where:

A_t is the current productivity technology level

L is manufacturing labor

X_t is the flow of the latest intermediate good.

When an innovation occurs, productivity jumps by a fixed internal factor $\gamma > 1$.

The evolution of knowledge is represented as:

$$A_{t+1} = \gamma A_t \text{ where } \gamma > 1.$$

Thus, innovation-motivated growth leads to creative destruction and enables the innovator to drive the firm that produces the intermediate good of quality A out of the market (Aghion et al., 2013).

Over time, as the new technology created by the innovation becomes public knowledge, that is, it ‘spills’ in the market and fosters further innovations. The previous innovator’s productivity level serves as the baseline for designing next-generation innovations without compensating the original innovator’s productivity. The current innovator obtains monopoly rents associated with A_t (the current productivity technology level) during interval t . At interval $t+1$, the new innovator builds directly on A_t to achieve A_{t+1} . Knowledge spillover in a laissez-faire economy thus generates a growth rate that can be either suboptimal or over-optimal relative to the baseline (Aghion et al., 2013).

The intertemporal spillover effect is positive when knowledge spills result in underinvestment in R&D in private markets. Innovators capture monopoly profits but cannot extract the full consumer surplus generated by their innovations. Overinvestment is caused by innovation when current innovators are unconcerned that their new techniques will destroy

the private monopoly profits of existing producers by making their existing technology obsolete. They aggressively invest in innovation to capture the market through over investment in R&D. This is a negative ‘business-stealing effect.’ The positive and negative spillover effects counteract one another.

Unemployment Security for subjective well-being: While jobs are creatively destroyed by innovation, new employment in expanding firms and industries must be created for those rendered unemployed. Aghion et al. (2016) argue that “the effect of creative destruction on well-being is unambiguously positive if we control for unemployment. Less so if we do not.”

Findings – The Policy Implications and Contemporary Relevance

Joel Mokyr, Philippe Aghion, and Peter Howitt present a scenario in which innovations destroy to construct, and knowledge, culture, and institutions expand useful knowledge. The basic argument is that two effects come into play simultaneously when innovations are introduced: ‘job creation’, which has a positive impact on well-being, and ‘job destruction’, which has a negative impact. Innovation has a negative impact because it destroys existing technologies by rendering them obsolete. To minimize these negative impacts, state intervention through policy measures is crucial; otherwise, innovation will be halted. Firms that gain from innovations today must be prevented from using their market power to block future innovations. The state can reduce the negative impact through measures such as generous unemployment benefits (Nobel Lecture, 2025). Policies such as the Flexicurity system in Denmark and the Netherlands, through which the government provides 90 percent of salary for two years as unemployment security to those whose jobs are creatively destroyed and provides retraining, are necessary to promote innovation and subjective well-being.

Suggestions

Realizing that endogenous factors – knowledge, innovation, and institutions—are crucial for growth, minimizing the negative impacts of creative destruction through state intervention is crucial. Based on the above analysis, the following policy measures should be adopted.

Adoption of Innovation-oriented policies: Creating an environment conducive to innovation through supportive policies to foster research and technological advancement.

Prevention of anti-competitive behavior: Firms benefiting from innovations often use their market monopoly to hinder future innovations. To ensure a healthy innovation ecosystem, policies that balance intellectual property rights and protect innovators from market dominance are necessary. This should be prevented through competition policies and regulations.

Public and private investment in education and skills: Strengthening education, vocational training, and lifelong learning can empower policymakers to build a workforce that can adapt to rapid changes.

Intellectual property rights protection: The IPR policy should be formulated to encourage innovation, market entry, and the diffusion of new knowledge and simultaneously provide support to face competition from existing entrepreneurs.

Social protection policies: As innovations often lead to unemployment or displacement, explicitly outlining how these measures will mitigate social impacts can reassure policymakers about social sustainability. Policy measures that provide reskilling, retraining, unemployment support, and labor market transition should be made an integral part of the government’s industrial policy.

Enabling human–AI complementarity: In rapidly changing AI technology, the fear of job displacement is widespread. AI cannot be ignored; the solution is to invest in digital literacy, AI awareness generation, and continuous reskilling, that is, the adoption of human–AI collaboration policies.

Conclusion

The rapid advancement of AI has led to a spree of creative destruction across all sectors. A supportive institutional environment to regulate against monopolization, encourage open-source initiatives to keep the market accessible to new, innovative advancements, enable human-AI collaboration to help employment seekers keep pace with market requirements, and prevent labor displacement is crucial. This research paper has outlined the views of the Nobel Laureates on endogenous growth and their

perspective that economic growth is an evolving process in which knowledge underpins innovation and innovation drives creative destruction. Institutions shape how effectively societies transform technological changes into broad-based economic and social well-being. In an increasingly AI-driven global economy, understanding and managing the innovation–employment–institution nexus is crucial for achieving sustainable, inclusive, and innovation-led economic growth. This consolidated picture of changing growth models can encourage economists, policymakers, students, and professionals to appreciate their roles in shaping future progress.

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